WHAT IS CLAIMED IS:

1. A sequential segment joining stator coil type electric rotating machine comprising:

a rotor having p pairs of poles (where p represents a natural number equal to or more than 2);

a stator core including a large number of slots each having s conductor accommodation positions (where s represents an even number equal to or more than 6) in its radial directions; and

an armature winding including m-phase windings (where m represents an odd number equal to or more than 3) made by sequentially connecting a large number of U-shaped segments, each of said U-shaped segments being composed of a U-shaped head portion made to constitute a head-side coil end, a pair of in-slot conductor portions to be respectively accommodated in a pair of slots separated by a predetermined slot pitch from each other and a pair of protruding end portions made to protrude from said slots to constitute an end-side coil end, and tip portions of said pair of protruding end portions being respectively joined to tip portions of other protruding end portions adjacent thereto in the radial directions,

wherein in-phase slot groups are provided for each pole, each including a plurality of in-phase slots forming said slots accommodating said in-slot conductor portions for making said phase windings in phase with each other, with said plurality of in-phase slots being continuously arranged in circumferential directions for each pole, and

said conductor accommodation positions of each of said slots are divided into r (where r = s/t) conductor accommodation position sets each composed of the t (where t represents an integer) conductor

accommodation positions continuously located in the radial directions, and

said in-phase slots of said in-phase slot groups identical in order when viewed from one of the circumferential directions accommodate a partial coil in each of said conductor accommodation position sets, and

said phase winding is constructed in a manner such that radial series coils formed by connecting said partial coils in said conductor accommodation position sets different from each other in series to each other through an inter-layer connection line, which are equal in number to said in-phase slots of said in-phase slot group, are connected in parallel with each other.

2. The machine according to claim 1, wherein combinations of said partial coils constituting said radial series coils of said phase winding are determined so that the total theoretical vector electromotive voltages of said radial series coils become equal to each other.

3. The machine according to claim 2, wherein, of said inter-layer connection lines for said radial series coils, said inter-layer connection lines located at the same position in a radial direction are separately placed in said in-phase slot groups different from each other in the circumferential directions so that said inter-layer connection lines located at the same position do not overlap with each other.

4. The machine according to claim 3, wherein

said partial coils are constructed in a manner such that wave winding segments forming said segments passing through first and fourth

layers of said conductor accommodation position set in the radial directions and lap winding segments forming said segments passing through second and third layers thereof are alternately connected to form first and second circling coils which substantially make a circuit, and said first and second circling coils are connected in series to shape-different wave winding segments serving as a last in-slot conductor portion of said first circling coil and a head in-slot conductor portion of said second circling coil, with said partial coils being accommodated in one in-phase slot of said in-phase slot group which has a predetermined order in the circumferential directions.